CHRIST
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BANGALORE · INDIA

A Project Report on

Cosmic-Zoom

Submitted in partial fulfillment of the requirements for the degree of

BACHELOR OF TECHNOLOGY

in

Computer Science and Engineering

by

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Under the Guidance of

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and

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Department Name

School of Engineering and Technology,

CHRIST (Deemed to be University),

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May-2021

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CERTIFICATE

This is to certify that **Ram Shankar Choudhary** has successfully completed the project work entitled "**Cosmic-Zoom**" in partial fulfillment for the award of **Bachelor of Technology** in **Computer Science and Engineering** during the year **2020-2021**.

Dr. Sandeep Kumar	**Samhitha Kottamasu**
Guide Designation	Exhibition Designer
Dr. K Balachandran	**Dr. Iven Jose**
Head of the Department	Dean

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BONAFIDE CERTIFICATE

It is to certify that this project titled "**Cosmic-Zoom**" is the bonafide work of

Name	Register Number	Department
Ram Shankar Choudhary	(1760357)	Computer Science & Engineering

Examiners [Name and Signature]

1.

2.

Name of the Candidate :

Register Number :

Date of Examination :

Industry Certificate

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Acknowledgement

We would like to thank **Dr. Rev. Fr. Abraham V M**, Vice Chancellor, CHRIST (Deemed to be University), **Dr. Rev. Fr. Joseph CC**, Pro Vice Chancellor, **Dr. Fr. Benny Thomas**, Director, School of Engineering and Technology and **Dr. Iven Jose**, Dean for their kind patronage.

We would also like to express sincere gratitude and appreciation to **Dr. K Balachandran**, Head of the Department, Department Name for giving me this opportunity to take up this project.

We also extremely grateful to my guide, **Dr. Sandeep Kumar**, who has supported and helped to carry out the project. His constant monitoring and encouragement helped me keep up to the project schedule.

We also extremely grateful to my co-guide, **Samhitha Kottamasu**, who has supported and helped to carry out the project. His constant monitoring and encouragement helped me keep up to the project schedule.

If outside the college-mention the organisation and the concerned people, like head of the organisation, guide and any other person you want to thank. All faculty and non-teaching staff. You may acknowledge your parents or any who supported you.

Declaration

We, hereby declare that the project titled "**Cosmic-Zoom**" is a record of original project work undertaken for the award of the degree of **Bachelor of Technology** in **Department Name**. We have completed this study under the supervision of **Dr. Sandeep Kumar**, Guide Department and **Samhitha Kottamasu**, .

We also declare that this project report has not been submitted for the award of any degree, diploma, associate ship, fellowship or other title anywhere else. It has not been sent for any publication or presentation purpose.

Place: School of Engineering and Technology,
CHRIST (Deemed to be University),
Bengaluru

Date: 15-06-2021

Name	Register Number	Signature
Ram Shankar Choudhary	(1760357)	

Abstract

The use of internet has had many positive effects on education. It has provided us with the means to educate each and everyone without any discrimination, and any limitations (term relative only in terms of education, not the accessibilty limitation). I t overcomes both the limitations that students mostly have, which is time and the amount of space required for various books. This also benefits the teachers who have vast access to all the information and resources from the internet.

2020 was the year that challenged all the education systems to re-think the way students could be educated and also resulted in many educational conferences being cancelled. But this also led us to switching to new ideas/processes using internet as the backbone of all the work we do. My project also involved converting an offline exhibition that was held every year to an online variant.

This exhibition has been converted to an online variant wherein scientists, researchers, and scholars from various universities come in and explain about their research and the impact that it produces in real-world. The design and development of the website took nearly 7 months comprising various applications, technolgies, illustrators, animators...etc. For the wireframing and the prototype of the website Adobe XD was the most used application other than Figma and Framer X. The front-end of the website was build using ReactJs framework, using Tailwind-Css, Twin Macro and Styled-Components to style the website. The data is being populated using Google Sheets API as they wanted to quickly keep changing content and wanted that to be reflected in the website without the hassle of updating it constantly to a database like postgres or Mongo as that would also introduce a curve to learn for the non-technical people who were managing the exhibition. The website was put into production using Nginx using the on-site servers.

***Keywords*:** React.js, Tailwind, Nginx, Google Sheet API, Git

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GLOSSARY

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Item	Description
Adobe XD	Adobe XD is a vector-based user experience design tool for web apps and mobile apps, developed and published by Adobe Inc.
Figma	Figma is a vector graphics editor and prototyping tool.
Framer X	Framer X is another prototyping tool but with a lot of emphasis on motion design.
ReactJs	React is an open-source, front end, JavaScript library for building user interfaces or UI components.
TailwindCSS	A utility-first CSS framework packed with CSS classes.
API	**A**pplication **P**rogramming **I**nterface
Nginx	NginX is a web server that can also be used as a reverse proxy, load balancer, mail proxy and HTTP cache.

Chapter 1

INTRODUCTION

The techonology has evolved rapidly and providede us with various ways to communicate on a global scale and assess vast amopunt of information with a click. This benefit can be utilized by various sectors, and one of them is education which can can greatly be made more efficient by removing limitations of time, space and money. Students could watch a topic being thought any time of the day, anywhere and also maybe for free of cost. With the rise of pandmic, and with the restrictions to the people, the technology to teach people has gathered a lot of attention and all the educational institutions are implementing various ways using these technologies. This is the same for organizing various educational events which hel pstudents learn much more than their syllabus and provides them a way to essentially choose their career path. My project also is invovled in developing such a website that is used to educate students with a very minimal user experience, so as to let all the age groups be able to access the website.

The purpose of this project was to implement an approach of user experience for a website design, that could highlight all the events conducted in the exhibition that also brought about the vision the client i.e Ajith wanted it to be, and also to develop this using the necessary technologies. While wrking on this project I mostly concentrated on revealing and understanding the concepts of UX design which include usability, visual design and human factors affecting the user experience. The vision that the client wanted wanted was for the website to look simple and yet elegant and to be accessible on any device without any hiccups with great user experience. With a lot of thinking, wireframing, and prototyping we came up with a design and a story that would be narrated by a host while show-casing the website. The process of designing and developing was divided into various phases like wireframing, designing, prototyping, data gathering, developing front-end, connecting APIs, and the deploying to an in-house server.

1.1 Problem Formulation

Under this the reason for choosing the particular problem or title for the project shall be explained along with the thought process that was involved in doing so. Since this project was for an online exhibition, the main goal was for it to have a very nice user experience, and also to tell a story from the narrator's point of view during the event. My aim was to understand all the design aesthetics needed for the project, and for that I needed to clearly undestand the scope of this exhibition as this would help me imagine and approach the design as intended by the narrator of the website(i.e the host of the online exhibition). The user experience and and the libraries that will be used to complete this project would be a problem as everything would have to be customized as the client would want it to be.

1.2 Problem Identification

Clearly, the problem here would be designing a good user experience that bodes well for people of all ages and provides them with a intriguing experience to enjoy the whole exhibition, along with the narrator. User experience concentrates on how the overall design makes the user to feel. To create not just beautiful but also qualitative and well-worked design is why a user experience design is needed. To achieve positive user feelings during using a website, designers should understand users' goals, desires, fears, behaviors and ambitions. The problem during software development is that the technical approaches/practices are more popular than user-centric ones. Based on a huge number of surveys conducted by the groups with strong reputation in software production, this is a problem which leads to unsuccessful projects. The reason is the lack of attention to user inputs. In the website design the user experience is identified by not just usability alone. It's also impacted by a lot of design components that UX design covers. It includes usability, utility, design, human factors, accessibility, persuasiveness and others. All these factors while designing also afftect the way that a website has to be developed, because the layout needs to be as accurate to the design as possible.

1.3 Problem Statement & Objectives

The project is meant to design and develop a website that has a good user experience, that can be used by people of all ages without much effort. It should be responsive and visually pleasing pleasing to all kinds of user. This website if for an exhibition that is being converted to an online exhibit and needs a lot of design approaches to be used to make it like so.

1.4 Limitations

There are a few limitations regards to this project alone, as I am the only developer who would also design the user experience of the online exhibit and due to the team not being technaical various terminology issues arise, where I have to summarize what I mean, and also the lack of understanding of the domains of which the exhibit is conducted presents an issue by itself. Technically, there is one limitation I would like to highlight; which is not using a database but rather a google sheet api which is not a good approach, but it was done due to the limitation of team not being being technically adept and also because it would reduce my(developer's) burden to constantly keep updating data.

Chapter 2

RESEARCH METHODOLOGY

MTech project report or thesis must have this chapter. This is an optional chapter for BTech, but highly recommended. Along with a brief introduction to research methodology and its fundamentals, under this chapter, it is required to include the methodology adopted for entire research process of the project work, including the preliminary research or background study carried out to identify and formulate the problem. Research methodology is the most important aspect of any research based project work. All Christ University libraries have books and other literatures on research methodology. There are a lot of MOOCS courses too on research methodology and completing one is highly recommended for all MTech students if they do not have it as one of their courses.

Chapter 3

LITERATURE SURVEY AND REVIEW

Any research based project is incomplete without a literature survey and review. Hence, this chapter is mandatory to both MTech and BTech projects. This chapter is mainly divided into two sub-chapters. Namely:

- Literature collection and segregation (called as literature survey – collection of data)
- Critical review of selected literature (from the ones collected during the survey)

The first cub-chapter is very straight forward to understand and perform. However, more emphasis is given to the second sub-chapter – Critical review. Consult with your guides/supervisors to understand this aspect and complete it accordingly. A slideshare presentation on literature review is a recommended reading.

3.1 Literature Collection & Segregation

3.2 Critical Review of Literature

Chapter 4

ACTUAL WORK

Upon completion of identifying & formulating the research problem, and carrying out the necessary literature survey and review, the actual work on the project is taken-up. This chapter is dedicated to the actual work done by students. Hence, the chapter name and sub-chapter names are not fixed. It is left to the discretion of the students with appropriate guidance from their respective supervisors. However, one or more of the following aspects (as applicable) shall be covered in this chapter:

- Methodology of the study or actual work (different from research methodology)
- Experimental and/or analytical work completed in the project
- Modeling, Analysis and Design
- Prototype and testing

In this project, I help design and build a web-site that is visually pleasing to all the age groups and has a great user experience. This website is designed to emulate how an offline exhibit would be like. A lot of work went into the design and the user experience of the website, and then more during web development. Various applications, and web-development technologies were utilized to create this online exhibit.

Software Requirements
Adobe XD

Framer X

React Js

Tailwind CSS

Frame Motion

Google Sheet API

React Slick - used in creating the custom slider

4.1 Methodology for the Study

The purpose of creating a website for the online exhibition is to provide a medium for students, researchers, and scholars to gather and get to know about the research of various other scientists/researchers from various other fields. The first step to do that is to make the website have a very good user experience and that can be used by all age groups, and also make is simple yet elegant in the views of these users. This is done by a lot reserach of the way the various interactionms can be shown and also the best way to show details of a particular exhibit.

4.2 Experimental and or Analytical Work Completed in the Project

Using React Slick to create a custom slider
React slick is a react component that can be used to create custom carousel's based on various parameters and CSS tweaking. React-Slick by itself is a component made up of javascript and css which has a basic slider functionality that we have used in this project to create the main page by customizing it a lot. The reason to choose this project over any other was because of the simplicity and the accessibility to its parent code that is provided to us when we install it.

Google Sheets API
Google sheets API provides us a way to Read, write, and format data in Sheets using the their API. This API has a lot of settings with which we can create beautiful and functional sheets within the code itself. Each spreadsheet has an id associated to it(you can also have a look at this id in the url when you open a google spreadsheet). The main

reason we choose this API was to read the cells of the spreadsheet, so that data from here can be populated in the exhibition website.

4.3 Modeling, Analysis & Design

4.4 Prototype & testing

Sample LaTeX Typesetting

Figure Vector Graphics EPS Format [Figure 4.1]

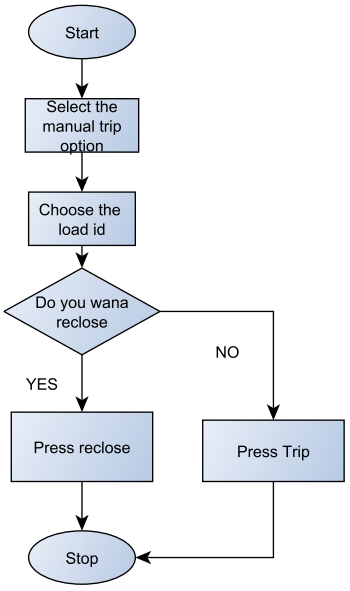

FIGURE 4.1: Flowchart of Manual Controller

Figure JPEG/JPG Format [Figure 4.2]

Table Refer [Table 4.1]

Cross References: Citation, Index, Reference, Equation reference This is the methodology for the entire project work which includes even the process of deciding

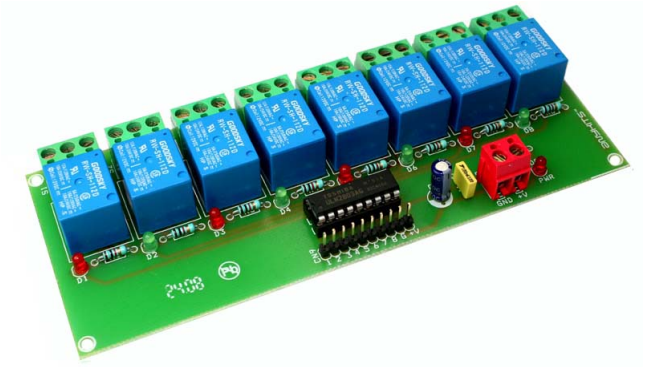

FIGURE 4.2: Relay Board

TABLE 4.1: Student Marks

Name	Marks
Ajay	10
Vinay	20

on the project title, objectives , etc. This is mandatory for MTech and optional for BTech)[2]. The data is shown in Table 4.1. The equation shown in Equation (4.1)

Inline Equation This is my equation. $f = ma \pm \alpha\Delta \begin{bmatrix} 1 & \chi \\ -1 & 0 \end{bmatrix}$,which is appearing in between some text.

Equation without Numbering

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Equation with Numbering

$$\dot{X} = \begin{bmatrix} 1 & p \\ 2 & \alpha \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + Bu \tag{4.1}$$

Algorithm Format

Enumeration Format The following are the different flavor of Tex systems

Algorithm 1 Addition of two 8 bit numbers

1: Start
2: Input a and b
3: c=a+b
4: Output c
5: stop

1. TeXLive TeX System
   (a) TeXLive for Windows
      i. TeXLive
      ii. ProTex
   (b) MacTeX for Mac
2. MikTeX TeX System

Bullets Format The following are the advantages of LaTeX,

- LaTeX is highly portable and free.
  - Contribute to TUG
  - Promote Free Softwares
- Operating-system independent.
- Complex scientific documents can be created automatically.
- High quality math typesetting.

Program Inclusion Program file present in other directory can be embedded into the report.

```
; Addition of two 8 bit numbers
ORG 0000H   ; Starting address of the program
MOV R1,#10H ; First number
MOV R2,#20H ; Second number
MOV A,R1    ; Input first number from R1 to A
MOV B,R2    ; Input second number from R2 to B
ADD A,B     ; Add A and B
MOV R3,A    ; Store the result in R3
RET
```

Verbatim Text Include text as it is.

The additional database schema is shown below which is used to store all the configuration and transaction data.

```
CREATE TABLE ‘controller_config‘ (
‘load_id‘ int(11) NOT NULL,
‘ct_constant‘ double DEFAULT NULL,
‘pt_constant‘ double DEFAULT NULL,
‘samples‘ int(11) DEFAULT NULL,
‘delay‘ double DEFAULT NULL,
PRIMARY KEY (‘load_id‘)
) ENGINE=InnoDB DEFAULT CHARSET=utf8;
SELECT * FROM loadcontroller.load_details;
```

Chapter 5

RESULTS, DISCUSSIONS AND CONCLUSIONS

Here, the results of the project work (literature survey and review along with actual work) shall be listed and discussed in detail with appropriate arguments (result analysis) leading to logical conclusions. The list of conclusions should sync with the project objectives. The scope for future research and development in the field of the current project work must also be included in this chapter.

5.1 Results & Analysis

5.2 Comparative Study

5.3 Discussions

5.4 Conclusions

Conclusion should be on new page and the same should come here.

5.5 Scope for Future Work

Future scope should be on new page and the same should come here.

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PUBLICATION DETAILS

S.K. Kenue and J.F. Greenleaf, “Limited angle multifrequency diffiaction tomography,” *IEEE Trans. Sonics Ultrason*., vol. SU-29, no. 6, pp. 213-2 17, July 1982.

Appendix A

Appendix A Title

Since the chapters are numerically numbered, the appendices shall be numbered using alphabets (English capital letters). The items that can be inserted as appendices are (list is not exhaustive):

- Project synopsis or proposal (if submitted before starting the project)
- Photos
- Software model analysis reports (these shall not be inserted in the main body of the report)
- Project schedules
- Selected material from the data collected
- Miscellaneous analysis and reports

A.1 Appendix A Section 1

A.1.1 Appendix A Subsection for Section 1

A.2 Appendix A Section 2

Appendix B

Appendix B Title

B.1 Appendix B Section 1

B.2 Appendix B Section 2

B.3 Appendix B Section 3

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